

Claims

What is Claimed is:

1. A diverter for reducing wear on a slurry pump comprising:
an impeller front shroud;
a suction liner face operatively opposed to the impeller front shroud; and
a plurality of protrusions extending from the suction liner face substantially to the front shroud whereby particles can be deflected away from the suction liner face.
2. The diverter of claim 1, wherein the impeller front shroud comprises clearing vanes.
3. The diverter of claim 2, wherein the clearing vanes have a depth from about 50% to about 100% of a thickness of the impeller front shroud.
4. The diverter of claim 2, wherein the clearing vanes further include a relief with the protrusion extending out and into the relief formed within the clearing vanes.
5. The diverter of claim 1, further including a gap formed between the protrusion and the impeller front facing having a gap distance from about 0.5 mm to about 2.5 mm.
6. The diverter of claim 1, wherein the protrusions are positioned upstream of the impeller nose gap.

7. The diverter of claim 1, wherein the protrusion has an outer edge and an inner edge.
8. The diverter of claim 7, wherein a distance between the inner edge of the protrusion and the impeller front shroud is about 25% to about 100% of a thickness of the impeller front shroud.
9. The diverter of claim 7, wherein the inner edge slopes of at least one protrusion is at an angle of about 45°.
10. The diverter of claim 1, wherein the slurry pump is a centrifugal pump comprising a shell.
11. A method for decreasing the number of particles that pass through an impeller nose gap of a slurry pump by clearing a portion of particle laden liquid from the impeller nose gap comprising the steps of:
 - diverting the portion of particle laden liquid to a clearing area; and
 - pumping the diverted particle laden liquid from the clearing area and into a main volute collector.
12. The method of claim 11, wherein the diverted particle laden liquid is pumped using centrifugal force.

13. The method of claim 11, wherein the step of diverting the portion of particle laden liquid to a clearing area includes diverting the portion of particle laden liquid away from a suction liner face.

14. A diverter for decreasing the number of particles that pass through an impeller nose gap of a slurry pump by diverting the particles to an impeller front shroud having clearing vanes, the diverter comprising:

a suction liner face operatively opposed to the impeller front shroud; and

a plurality of protrusions extending from the suction liner face to the front shroud whereby particles can be deflected away from the suction liner face and into the clearing vanes.

15. The diverter of claim 14, wherein the clearing vanes further include a plurality of reliefs with the protrusion extending out and into the relief formed within the clearing vanes.

16. The diverter of claim 14, further including a gap formed between the protrusions and the impeller front facing having a gap distance from about 0.5 mm to about 2.5 mm.

17. The diverter of claim 1, wherein the protrusions are positioned upstream of the impeller nose gap.

18. The diverter of claim 1, wherein the protrusion has an outer edge and an inner edge.

19. The diverter of claim 18, wherein a distance between the inner edge of the protrusion and the impeller front shroud is about 25% to about 100% of a thickness of the impeller front shroud.

20. The diverter of claim 18, wherein the inner edge slopes of at least one protrusion is at an angle of about 44°.